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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,418	07/10/2007	Roderick Scott	68449.000002	1757
21967	7590	06/02/2009	EXAMINER	
HUNTON & WILLIAMS LLP INTELLECTUAL PROPERTY DEPARTMENT 1900 K STREET, N.W. SUITE 1200 WASHINGTON, DC 20006-1109			COLLINS, CYNTHIA E	
ART UNIT	PAPER NUMBER	1638		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,418	<b>Applicant(s)</b> SCOTT, RODERICK
	<b>Examiner</b> Cynthia Collins	<b>Art Unit</b> 1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1)  Responsive to communication(s) filed on September 1, 2006.
- 2a)  This action is FINAL.      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4)  Claim(s) See Continuation Sheet is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) \_\_\_\_\_ is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) See Continuation Sheet are subject to restriction and/or election requirement.

#### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some \* c)  None of:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5)  Notice of Informal Patent Application
- 6)  Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1-5,10,20,22,25,26,28-31,34-70,72,74-80,85,95,97,98,100,103-105,109,113-151,153 and 155-165.

Continuation of Disposition of Claims: Claims subject to restriction and/or election requirement are 1-5,10,20,22,25,26,28-31,34-70,72,74-80,85,95,97,98,100,103-105,109,113-151,153 and 155-165.

**DETAILED ACTION**

***Election/Restrictions***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 51-54, and 132-135, drawn to a method of claim 1 in which the overall size of the integument/seed coat is modified, and in which the function of a gene that modulates cell proliferation is enhanced, and a plant according to claim 76.

Group II, claim(s) 51-54, and 132-135, drawn to a method of claim 2 in which the overall size of the integument/seed coat is modified, and in which the function of a gene that modulates cell proliferation is enhanced, and a plant according to claim 77.

Group III, claim(s) 57 and 138, drawn to a method of claim 1 in which the overall size of the integument/seed coat is modified, and in which the function of the gene is modulated by operably linking a plant promoter to a nucleic acid fragment from the gene to form a recombinant nucleic acid molecule such that an antisense strand of RNA will be transcribed, and in which the function of a gene is modulated by introducing nucleic acid segments of the gene into an appropriate vector such that double-stranded RNA is transcribed where directed by an operably linked plant promoter, and a plant according to claim 76.

Group IV, claim(s) 57 and 138, drawn to a method of claim 2 in which the overall size of the integument/seed coat is modified, and in which the function of the gene is modulated by operably linking a plant promoter to a nucleic acid fragment from the gene to form a recombinant nucleic acid molecule such that an antisense strand of RNA will be transcribed, and in which the function of a gene is modulated by introducing nucleic acid segments of the gene into an appropriate vector such that double-stranded RNA is transcribed where directed by an operably linked plant promoter, and a plant according to claim 77.

Group V, claim(s) 58-59 and 139-140, drawn to a method of claim 1 in which the overall size of the integument/seed coat is modified, and in which the function of the gene is modulated by operably linking a plant promoter to a nucleic acid fragment from the gene to form a recombinant nucleic acid molecule such that an antisense strand of RNA will be transcribed, and in which decreased levels of mRNA and/or protein encoded by endogenous copies of the gene are produced, and a plant according to claim 76.

Group VI, claim(s) 58-59 and 139-140, drawn to a method of claim 2 in which the overall size of the integument/seed coat is modified, and in which the function of the gene is modulated by operably linking a plant promoter to a nucleic acid fragment from the gene to form a recombinant nucleic acid molecule such that an antisense strand of RNA will be transcribed, and in which decreased levels of mRNA and/or protein encoded by endogenous copies of the gene are produced, and a plant according to claim 77.

Group VII, claim(s) 60-61 and 141-142, drawn to a method of claim 1 in which the overall size of the integument/seed coat is modified, and in which the function of the gene is modulated by operably linking a plant promoter to a nucleic acid fragment from the gene to form

a recombinant nucleic acid molecule such that an antisense strand of RNA will be transcribed, and in which the levels of mRNA and/or protein encoded by homologues of the gene are reduced, and a plant according to claim 76.

Group VIII, claim(s) 60-61 and 141-142, drawn to a method of claim 2 in which the overall size of the integument/seed coat is modified, and in which the function of the gene is modulated by operably linking a plant promoter to a nucleic acid fragment from the gene to form a recombinant nucleic acid molecule such that an antisense strand of RNA will be transcribed, and in which the levels of mRNA and/or protein encoded by homologues of the gene are reduced, and a plant according to claim 77.

Group IX, claim(s) 4-5, 10, 79-80 and 85, drawn to a method of claim 1 in which the function of a gene or gene product that promotes cell division is enhanced, and a plant according to claim 76.

Group X, claim(s) 4-5, 10, 79-80 and 85, drawn to a method of claim 1 in which the function of a gene or gene product that represses cell division is inhibited, and a plant according to claim 76.

Group XI, claim(s) 4-5, 10, 79-80 and 85, drawn to a method of claim 2 in which the function of a gene or gene product that promotes cell division is enhanced, and a plant according to claim 77.

Group XII, claim(s) 4-5, 10, 79-80 and 85, drawn to a method of claim 2 in which the function of a gene or gene product that represses cell division is inhibited, and a plant according to claim 77.

Group XIII, claim(s) 20 and 95, drawn to a method of claim 1 in which the diameter of the stem of the plant is at least 10% greater than wild type, and a plant according to claim 76.

Group XIV, claim(s) 20 and 95, drawn to a method of claim 2 in which the diameter of the stem of the plant is at least 10% greater than wild type, and a plant according to claim 77.

Group XV, claim(s) 22 and 100, drawn to a method of claim 1 in which the number of cells in the integuments/seed coat is increased compared to wild type, and a plant according to claim 76.

Group XVI, claim(s) 22 and 100, drawn to a method of claim 2 in which the number of cells in the integuments/seed coat is increased compared to wild type, and a plant according to claim 77.

Group XVII, claim(s) 25-26 and 97-98, drawn to a method of claim 1 in which the sepal length is at least 20% greater than wild type, and a plant according to claim 76.

Group XVIII, claim(s) 25-26 and 97-98, drawn to a method of claim 2 in which the sepal length is at least 20% greater than wild type, and a plant according to claim 77.

Group XIX, claim(s) 29-30 and 104-105, drawn to a method of claim 1 in which the function of a gene or gene product that promotes cell division is inhibited, and in which cell division in the integuments/seed coat is decreased resulting in a smaller seed compared to wild type, and a plant according to claim 76.

Group XX, claim(s) 29-30 and 104-105, drawn to a method of claim 1 in which the function of a gene product that represses cell division is enhanced, and in which cell division in the integuments/seed coat is decreased resulting in a smaller seed compared to wild type, and a plant according to claim 76.

Group XXI, claim(s) 29-30 and 104-105, drawn to a method of claim 2 in which the function of a gene or gene product that promotes cell division is inhibited, and in which cell division in the integuments/seed coat is decreased resulting in a smaller seed compared to wild type, and a plant according to claim 77.

Group XXII, claim(s) 29-30 and 104-105, drawn to a method of claim 2 in which the function of a gene product that represses cell division is enhanced, and in which cell division in the integuments/seed coat is decreased resulting in a smaller seed compared to wild type, and a plant according to claim 77.

Group XXIII, claim(s) 31 and 113, drawn to a method of claim 1 in which the function of a gene or gene product that promotes cell division is inhibited, and the number of cells in the integuments/seed cost is decreased compared to wild type, and a plant according to claim 76.

Group XXIV, claim(s) 31 and 113, drawn to a method of claim 1 in which the function of a gene product that represses cell division is enhanced, and the number of cells in the integuments/seed cost is decreased compared to wild type, and a plant according to claim 76.

Group XXV, claim(s) 31 and 113, drawn to a method of claim 2 in which the function of a gene or gene product that promotes cell division is inhibited, and the number of cells in the integuments/seed cost is decreased compared to wild type, and a plant according to claim 77.

Group XXVI, claim(s) 31 and 113, drawn to a method of claim 2 in which the function of a gene product that represses cell division is enhanced, and the number of cells in the integuments/seed cost is decreased compared to wild type, and a plant according to claim 77.

Group XXVII, claim(s) 34 and 115, drawn to a method of claim 1 in which growth or development or function of any part of the plant other than the seed is not substantially affected, and a plant according to claim 76.

Group XXVIII, claim(s) 34 and 115, drawn to a method of claim 2 in which growth or development or function of any part of the plant other than the seed is not substantially affected, and a plant according to claim 77.

Group XXIX, claim(s) 35-44 and 116-125, drawn to a method of claim 1 in which the regulatory sequence includes a promoter, and a plant according to claim 76.

Group XXX, claim(s) 35-44 and 116-125, drawn to a method of claim 2 in which the regulatory sequence includes a promoter, and a plant according to claim 77.

Group XXXI, claim(s) 45-46 and 127, drawn to a method of claim 2 in which the gene is MNT or its orthologues, and a plant according to claim 77.

Group XXXII, claim(s) 45-46 and 127, drawn to a method of claim 2 in which the gene is IPT1 or its orthologues, and a plant according to claim 77.

Group XXXIII, claim(s) 45-46 and 127, drawn to a method of claim 2 in which the gene is ARGOS or its orthologues, and a plant according to claim 77.

Group XXXIV, claim(s) 47-48 and 129, drawn to a method of claim 2 in which the core cell cycle gene is CYCD3;1, and a plant according to claim 77.

Group XXXV, claim(s) 47-48 and 129, drawn to a method of claim 2 in which the core cell cycle gene is CYCB1;1, and a plant according to claim 77.

Group XXXVI, claim(s) 49-50 and 130-131, drawn to a method of claim 2 in which the transcription factor is ANT or its orthologues, and a plant according to claim 77.

Group XXXVII, claim(s) 55 and 136, drawn to a method of claim 1 in which a plant promoter is operably linked to a coding region of the gene in the sense orientation, and a plant according to claim 76.

Group XXXVIII, claim(s) 55 and 136, drawn to a method of claim 2 in which a plant promoter is operably linked to a coding region of the gene in the sense orientation, and a plant according to claim 77.

Group XXXIX, claim(s) 62 and 143, drawn to a method of claim 2 in which the function of the gene is modulated by operably linking a plant promoter to a 'dominant negative' allele of the gene, which interferes with the function of the gene product, and a plant according to claim 77.

Group XL, claim(s) 63 and 144, drawn to a method of claim 2 in which the nucleic acid sequence comprises or is derived either from wild-type MNT or a mutant form of mnt or its orthologues, and a plant according to claim 77.

Group XLI, claim(s) 64-68 and 145-149, drawn to a method of claim 1 in which the plant is further modified to maintain desirable characteristics in other parts of the plant which may have been lost or modified after the modulation or transformation step, and a plant according to claim 76.

Group XLII, claim(s) 64-68 and 145-149, drawn to a method of claim 2 in which the plant is further modified to maintain desirable characteristics in other parts of the plant which may have been lost or modified after the modulation or transformation step, and a plant according to claim 77.

Group XLIII, claim(s) 69-70 and 150-151 drawn to a method of claim 1 in which the plant is monocotyledonous, and a plant according to claim 76.

Group XLIV, claim(s) 69-70 and 150-151, drawn to a method of claim 2 in which the plant is monocotyledonous, and a plant according to claim 77.

Group XLV, claim(s) 72 and 153, drawn to a method of claim 1 in which the plant is dicotyledonous, and a plant according to claim 76.

Group XLVI, claim(s) 72 and 153, drawn to a method of claim 2 in which the plant is dicotyledonous, and a plant according to claim 77.

Group XLVII, claim(s) 74 and 155, drawn to a method of claim 1 in which the plant is subsequently bred to be homozygous for the modulated gene, and a plant according to claim 76.

Group XLVIII, claim(s) 74 and 155, drawn to a method of claim 2 in which the plant is subsequently bred to be homozygous for the modulated gene, and a plant according to claim 77.

Group XLIX, claim(s) 75 and 156, drawn to a method of claim 2 in which plant is bred to be heterozygous for the modulated gene, and a plant according to claim 77.

Group L, claim(s) 109, drawn to a plant according to claim 76 and claim 104 in which the seed is at least 5% lighter than wild-type.

Group LI, claim(s) 109, drawn to a plant according to claim 77 and claim 104 in which the seed is at least 5% lighter than wild-type.

Group LII, claim(s) 158-161, drawn to a method according to claim 157 in which the response to an auxin is modulated by altering the expression of the auxin response factor is ARF2.

Group LIII, claim(s) 162-165, drawn to a method according to claim 157 in which a gene encoding MNT or an orthologue thereof is modified so as to affect expression of the factor.

Claim 1 link(s) inventions I, III, V, VII, IX-X, XIII, XV, XVII, XIX-XX, XXIII-XXIV, XXVII, XXIX, XXXVII, XLI, XLIII, XLV and XLVII.

Claim 2 link(s) inventions II, IV, VI, VIII, XI-XII, XIV, XVI, XVIII, XXI-XXII, XXV-XXVI, XXVIII, XXX-XXXVI, XXXVIII-XL, XLII, XLIV, XLVI, and XLVIII-XLIX.

Claims 3 and 78 link(s) inventions I-VIII.

Claims 28 and 103 link(s) inventions XIX-XXVII.

Claims 45 and 126 link(s) inventions XXXI-XXX.

Claims 47 and 128 link(s) inventions XXXIV-XXXV.

Claims 56 and 137 link(s) inventions III-VIII.

Claim 76 link(s) inventions I, III, V, VII, IX-X, XIII, XV, XVII, XIX-XX, XXIII-XXIV, XXVII, XXIX, XXXVII, XLI, XLIII, XLV, XLVII and L.

Claim 77 link(s) inventions II, IV, VI, VIII, XI-XII, XIV, XVI, XVIII, XXI-XXII, XXV-XXVI, XXVIII, XXX-XXXVI, XXXVIII-XL, XLII, XLIV, XLVI, XLVIII-XLIX and LI.

Claim 157 link(s) inventions LII and LIII.

The restriction requirement between the linked inventions is **subject to** the nonallowance of the linking claim(s), claims 1-3, 28, 45, 47, 56, 76-78, 103, 126, 128, 137 and 157. Upon the indication of allowability of the linking claim(s), the restriction requirement as to the linked inventions **shall** be withdrawn and any claim(s) depending from or otherwise requiring all the

limitations of the allowable linking claim(s) will be rejoined and fully examined for patentability in accordance with 37 CFR 1.104 **Claims that require all the limitations of an allowable linking claim** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

Applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, the allowable linking claim, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

The inventions listed as Groups I-LI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The technical feature linking the inventions of Groups I-LI is a nucleic acid whose expression or transcription product is capable of directly or indirectly modulating cell proliferation in a plant. However, a nucleic acid whose expression or transcription product is capable of directly or indirectly modulating cell proliferation in a plant is obvious over or anticipated by Fischer et al. (U.S. Patent No. 6,559,357, issued May 6, 2003), and therefore does not constitute a special technical feature as defined by PCT Rule 13.2, because it does not define a contribution over the prior art.

The inventions listed as Groups LII-LIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The technical feature linking the inventions of Groups LII-LIII is an auxin response factor gene. However, an auxin response factor gene is obvious over or anticipated by Sato Y. et al. (Auxin response factor family in rice. *Genes Genet Syst.* 2001 Dec;76(6):373-80), and therefore does not constitute a special technical feature as defined by PCT Rule 13.2, because it does not define a contribution over the prior art.

Groups I-LI and Groups LII-LIII are not linked by a technical feature.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Collins whose telephone number is (571) 272-0794. The examiner can normally be reached on Monday-Friday 8:45 AM -5:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Collins/  
Primary Examiner, Art Unit 1638

CC